Comments of Pacific Gas and Electric Company
Flexible Resource Adequacy Criteria and Must-Offer Obligation
Fourth Revised Straw Proposal

Submitted by	Company	Date Submitted
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Pacific Gas and Electric Company (PG&E) offers the following comments in the stakeholder process for the California Independent System Operator's (CAISO) Flexible Resource Adequacy Criteria and Must-Offer Obligation (FRAC-MOO) Initiative November 6, 2013 Fourth Revised Straw Proposal (Proposal).

PG&E chief comments are:

1. The flexibility requirement caused by Variable Energy Resources (VERs) needs to be allocated to VERs;
2. The allocation load-driven requirement should be based on each LSE's largest, non-coincident ramp;
3. The flexibility Adder is already included in the CPM price of $67.50;
4. The frameworks proposed thus far by the CAISO to determine the flexibility Adder have been insufficient; and
5. The CAISO should expand the conditions for outage substitution.

Please submit comments (in MS Word) to fcp@caiso.com no later than the close of business on November 27, 2013.

1. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. As detailed in the fourth revised straw proposal[1] and at the 11/13 stakeholder meeting PG&E has put forward an alternative allocation methodology. Please provide comments for each of

[1] PG&E's specific proposal can be found at http://www.caiso.com/Documents/PG_E-Comments-FlexibleResourceAdequacyCriteriaMustOfferObligation-ThirdRevisedStrawProposal.pdf.

these proposals, particularly as they relate to cost causation. If your organization has a preference for one over the other, please state your preference and why.

PG&E appreciates the continued dialogue and work on this element of the initiative. As discussed during the November 13, 2013 stakeholder meeting, there are two elements of the allocation methodology that must be addressed: allocation to load and allocation to VERs.

- PG&E believes the flexibility requirement caused by VERs output should be allocated to VERs.
- PG&E believes allocation to load should be done based on each LSE's largest monthly ramp, regardless of coincidence to net-load peak ramp.

Flexibility Requirement Caused by VERs Output Should be Allocated to VERs

PG&E supports allocating the flexibility requirement caused by VERs to VERs. An allocation to VERs is fair, helps create efficient procurement outcomes and does not put at risk grid reliability.

As discussed in PG&E's previous comments, allocation of the flexibility requirement of merchant VERS or VERs with non-CAISO off-takes to CAISO participants is unjust and unreasonable. Other control areas, such Puget Sound Energy (Puget)[2] and Westar Energy[3] have recognized the need to fairly allocate the fixed capacity costs associated with regulation services. Puget developed FERC-approved regulation services charges for generators that include the capacity cost of resources needed to balance intermittent generation. These costs are allocated by Puget to generators that export their power or serve the energy needs inside the control area. The CAISO should take a similar approach in allocating flexibility requirements to generators that export their energy or serve CAISO load.

The allocation of the flexibility requirement to VERS will also promote efficient procurement outcomes. If the true cost of VERs is allocated to VERs, then these costs will be reflected in their offers to energy and capacity solicitations. This means that the true costs will be reflected in the offers, and the procurement will be based on a more accurate cost basis resulting in better procurement decisions.

[2] Puget Sound Energy's Compliance Filing Regarding Revisions to Settlement and Submission of Schedules 3 and 13 of Puget Sound Energy, Inc.'s Open Access Transmission Tariff, Feb. 6, 2013. http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13173234

[3] Westar Balancing Area Services Agreement and Schedule 3A to Open Access Transmission Tariff, June 3, 2009. http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12041334

Moreover, having these costs correctly accounted is also fairer to competing resource technologies that have lower or little flexibility requirement costs.

Allocation of the flexibility requirement to VERs will not put at risk grid reliability. One possible solution suggested at the stakeholder meeting to eliminate the possibility of CAISO load procuring flexibility on behalf of non-CAISO load was for the CAISO to remove the generation and variability produced by VERs from non-CAISO off-takers from the requirement calculation. This is a fundamentally flawed approach. Either the CAISO needs the flexibility or it does not. The requirement does not disappear simply because there is a non-CAISO off-taker (assuming the generator is not dynamically metered). If the requirement is needed for reliable grid operations, then it should be procured. Artificially reducing the requirement puts the CAISO's reliability at risk.

Finally, the issue of grandfathering for VERs is irrelevant. This is a new requirement for both load and generators to better reflect the changing energy market. The CAISO is not seeking to eliminate an established CAISO settlement calculation. The fair allocation of this new requirement to all participants (load and generation) needs to be considered. This is similar to the approach taken in the FERC settlement for the Flexible Ramping Constraint cost. Like the flexible capacity requirement, this was a new cost. The issue of cost allocation among load and generation was considered in the settlement, and generators are allocated that portion of the cost that was determined attributable to them (25%).[4] Similar to the Flexible Ramping Constraint, a portion of the flexibility requirement should be allocated to the generators causing the requirement.

Allocation to Load Should be Done Based on Each LSE's Largest Monthly Ramp, Regardless of Coincidence to Net-Load Peak Ramp

PG&E maintains that the principled framework laid out in our comments on the Third Revised Straw is preferred over the CAISO's allocation based on ramps coincident to the system net load ramp. Our description referred to "free-ridership" which we intended to mean one LSE benefiting from the flexible capacity procured by another LSE and not sufficiently contributing to the procurement of flexible capacity as we showed can happen using the coincident peak approach.

Regardless of what we call this consequence, the fact is, as shown in the simple example in our previous comments, a fairness issue exists with the coincident approach. A non-coincident approach addresses this flaw.

[4] CAISO Fifth Replacement Tariff, Section 11.25.3.
http://www.caiso.com/Documents/Section11_CaliforniaISOSettlements-Billing_Nov1_2013.pdf

PG&E believes that entities benefitting from procured flexibility should be required to pay a portion of the procurement costs, just as entities benefitting from the investment of transmission are required to pay for a portion of the costs of that transmission[5]. This is the key underlying argument of PG&E's proposed allocation methodology – that all entities will utilize and benefit from procured flexible capacity, regardless of their contribution to the coincident system net load ramp.

2. The ISO believes that demand response resources should have the opportunity to provide flexible capacity. The ISO has proposed how demand response resources could do so. Please provide comments on the ISO's proposal. Specifically, please identify concerns with the ISO's proposal and offer potential solutions to these concerns. Additionally, please comment on the proper forum (ISO, CPUC, etc.) where these concerns should be addressed.

An Example of the Proposed Calculation of Opportunity Cost for Demand Response Resources is Necessary

The CAISO's plan to calculate opportunity cost for Demand Response (DR) resources requires additional clarification. The cost of interrupting customers will vary on a customer by customer basis, by time of day, season, and frequency of usage. For this reason, a single, simple calculation seems inadequate to address the unique characteristics of these resources. PG&E requests an example of calculating opportunity cost for DR in the Draft Final Proposal.

Testing Demand Response Resources is the Responsibility of the CPUC

PG&E also notes that the CAISO's plan for testing DR appears to be a duplicative effort. Determination of EFC for DR is currently being addressed in Phase 3 of the CPUC's R.11-10-023. The CAISO should allow the CPUC's regulatory process to conclude rather than address it in the FRAC-MOO stakeholder process. Should the CAISO insist on moving forward on this duplicative provision, the test event should not be random as the CAISO has stipulated in its proposal. The discretionary load of a demand response resource may vary throughout the day so a random test event will often yield an inaccurate result.

3. Please provide comments and recommendations (including requested clarifications) regarding the ISO's proposed must-offer obligations for the following resources types:

[5] FERC Transmission Planning and Cost Allocation by Transmission Owning Utilities, Notice of Proposed Rulemaking, Issued June 17, 2010, Docket RM10-23-000, p79-80. http://www.ferc.gov/whats-new/comm-meet/2010/061710/E-9.pdf

a. Dispatchable gas-fired use-limited resources

1. Please provide comments regarding the ISO's proposal that would allow resources with use-limitations to include the opportunity costs in the resource's default energy bid, start-up cost, and minimum load cost.

An Interim Availability of a Hard-Stop Option Alternative is Needed Due to the Complexity and Uncertainty of the Opportunity Cost Methodology

PG&E understands the challenging considerations and trade-offs associated with the CAISO's proposed selection of an opportunity cost methodology to best allow market participants to manage the scheduling and dispatch of dispatchable gas-fired use-limited resources in conjunction with the Flexible RA bidding obligations. Each of the outlined options (no must-bid obligations, the use of hard-stops, opportunity cost methodology) have benefits and limitations.

While not objecting to the selection of the opportunity cost methodology, PG&E is concerned about the complexity and development time. The proposal indicates that "the ISO plans to develop a unit commitment optimization model based on the proposed methodology presented by the Market Surveillance Committee"[6], however PG&E highlights that the MSC's own assessment indicates that "opportunity costs are difficult to estimate…", "this calculation would be complex, costly…", and that there are "practical challenges involved in the design and implementation".[7]

Given the complexity, PG&E recommends that the CAISO offer an interim use of the hard-stop alternative as an available option for market participants if there are unforeseen difficulties that preclude the timely implementation by the CAISO of a robust and accurate opportunity cost methodology.

The Proposed Opportunity Cost Methodology Should Include a Negotiated Option

Given the difficulty of the opportunity cost methodology, market participants should further be allowed the option of using a negotiated option to establish cost adders, rather than restricted to the use of CAISO (or Potomac Economics) established

[6] FRAC-MOO Fourth Revised Straw Proposal, page 35. http://www.caiso.com/Documents/FourthRevisedStrawProposal-FlexibleResourceAdequacyCriteriaMustOfferObligation.pdf

[7] Market Surveillance Committee Opinion on Bid Cost Recovery Mitigation Measures and Commitment Costs Refinement, May 7, 2012. http://www.caiso.com/Documents/MSCFinalOpinion-BidCostRecoveryMitigationMeasures_CommitmentCostsRefinement.pdf

values that are otherwise lower than those believed to be appropriate by the market participant. A similar process currently is provided with default energy bids.

2. Please provide information on any use-limitations that have not been addressed and how the ISO could account for them.

PG&E has no comment at this time.

b. Specialized must-offer obligations:

1. Demand response resources

PG&E has no comment at this time.

2. Storage resources

Energy Storage Resources' EFCs Should Reflect the Total Energy Provided by these Resources

PG&E remains opposed to the CAISO's plan to allow energy storage resources to seemingly qualify for an undue amount of flexibility (i.e. equal to nameplate rating) for those resources that provide regulation energy management. This element of the proposed market design is likely to result in hundreds of MW of regulation energy management in excess of what the CAISO needs to run its system. At a minimum, any storage resource providing regulation energy management should count as no more than one-twelfth of its nameplate rating, based on the three-hour energy requirement applied to other resources. This is the appropriate measure since this resource will be providing fifteen minutes (one quarter of an hour) of energy, based on PG&E's understanding that resources must be able to ramp to and sustain their output for three hours to qualify.

Such an approach would be consistent with concerns raised at the Market Surveillance Committee meeting on November 15, 2013 that these specialized MOOs may unfairly overvalue use-limited resources.

3. Variable energy resources

The MOO for VERs Requires Additional Clarification

The MOO for variable energy resources (VERs) requires additional language and clarity in the Draft Final Proposal for this initiative. There are a number of elements yet to be addressed. PG&E requests clarification of the following points in the Draft Final Proposal:

- How will the EFC for VERs be calculated? What is the VER's EFC related to its NQC?
- What are the substitution rules for VER unavailability?
- Define the relationship between energy storage and VERs. Specify, how will the EFC for VERs with on-site storage be calculated?

Since the eligibility and counting of VERs for to provide flexibility has not yet been determined, it is impossible to tell whether the proposed must-offer obligations are appropriate.

PG&E also has questions related to the CAISO's proposal to treat VERs by counting availability as the lower of the bid or the resource's forecast. This elicits a number of operational questions.

- Following the CAISO's example on page 43 of the Proposal, if a VER forecasted 10MW of flexible capacity in the day-ahead, but only 0MW in real-time it is unclear whether or not that resource would be subject to the incentive mechanism.
- Are flexible VERs allowed to provide substitute flexible capacity in the real-time and what are the rules for this substitution?
- PG&E notes that if existing real-time substitution rules are required to avoid incentive mechanism penalty charges, it is unlikely that that flexible VERs will be claimed to meet flexible capacity.

4. At the 11/13 stakeholder meeting there a significant amount of discussion regarding the appropriate method for setting the price for the proposed flexible capacity availability incentive mechanism. Please provide comments about how this issue might be resolved.

Methodology for the Adder Price is Currently Unproven

Although PG&E is open to considering an Adder approach, we do not support the methodologies for calculating the flexible capacity Adder price proposed by the CAISO to date. The CAISO needs to develop an Adder framework that is fundamentally sound, transparent and reproducible. The frameworks proposed

thus far have not met these requirements. The CAISO must provide mathematical examples of its calculations that can be vetted and replicated by stakeholders.

We do support the notion first raised by SDG&E that the current CPM price of $67.50 already includes payment for both generic capacity and an adder for flexibility. The CPM price coming out of the FERC settlement conference was envisioned to compensate flexible resources. In fact the original CAISO filed rate was based on the going forward cost for a combined cycle unit. The real question is how much of the $67.50 is represented by the flexibility adder.

The types of resources that receive CPM payments supports the assertion that the CPM price was established to compensate units that are flexible. For example, in 2012 four resources received CPM payments: Huntington Beach Unit 1, Huntington Beach Unit 3, Huntington Beach Unit 4 and Encina Unit 4.[8] These are natural gas, powered steam units and appear to be flexible. The CAISO has procured flexible resources through the CPM, and so, while the Adder methodology may be appropriate, the total of the flexible and generic values should equal the effective CPM rate.

The implication is that any flexibility adder should not be added to the CPM price of $67.50 to determine the incentive or backstop price for flexible capacity. The $67.50 is the price that should be used for flexible capacity. The incentive or backstop price for non-flexible capacity should be something less than $67.50 and will be calculated by subtracting the flexibility Adder from the CPM price.

5. The ISO has proposed an SFCP evaluation mechanism/formula that weights compliance with the real-time must offer obligation heavier than the day-ahead must offer obligation. Please comment on:

    a. The merits of using such a weighting mechanism relative to the "lesser of" proposal from the previous proposal

    b. The relative weights between the real-time and day-ahead markets

The CAISO's proposed 80%/20% weighting for real-time vs. day-ahead bids requires explanation and justification. It is unclear why the CAISO believes it is four times more important for resources to be flexible in real-time than in the day-ahead.

[8] Department of Market Monitoring 2012 Annual Report of Market Issues & Performance, page 217. http://www.caiso.com/Documents/2012AnnualReport-MarketIssue-Performance.pdf

6. There were several clarifying questions asked at the 11/13 stakeholder meeting regarding substitution of flexible capacity that is on forced outage. Please provide comments and/or questions (and potential answers) regarding any additional clarifications the ISO should make in the next revision to clarify this aspect of the proposal.

The CAISO has only identified one type of resource substitution in its proposal: substitution for forced outages. PG&E recommends that the CAISO clarify that a many-to-many approach will be allowed similar to generic RA. Also, the CAISO should expand substitution for needs beyond forced outages. Lastly, PG&E is seeking the CAISO to clarify the replacement policy.[9]

Forced Outage Substitution – Include Many-to-Many Approach

The proposal includes forced outage substation. Scheduling Coordinators (SCs) may substitute non-committed flexible RA capacity for flexible RA capacity that is unavailable due to a forced outage. Consistent with existing rules for substitution of generic RA, the CAISO should allow Forced Outage Substitution to be provided no later than 5 a.m. prior the close of the day-ahead market. PG&E recommends the CAISO should allow the "many-to-many" approach for this form of substitution that it is currently implementing for generic RA.

Expand Substitution Rules to Include Non-Outage

PG&E recommends the proposal be expanded to include substitution for other situations beyond forced outage. SCs should be able to substitute non-committed flexible RA capacity for flexible RA capacity that is not on outage but cannot meet its flexible RA MOO due to events such as unit testing or anticipation of exceeding a use-limitation. The CAISO should allow this type of substitution to occur any time before the close of the day-ahead market. As described above, the CAISO should allow a "many-to-many" substitution approach.

Clarify No Replacement Requirement in 2015

Replacement may occur as a result of either a planned outage or for failure to meet the flexible allocation requirement. The proposal is confusing regarding the rules

[9] As defined in the Proposal, the time window for "replacement" is from 25 days prior through 11 days prior to the start of the RA month (page 27). Whereas "substitution" is applicable to flexible RA resource that reach their use-limitation during the RA month (Proposal, page 8) or that experience forced outages (Proposal, pages 27 and 52).

for replacement. The CAISO should make clear there will be no replacement requirement in 2015 for approved outages.[10]

7. Please provide comments regarding how, or if, the SFCP adder price and the flexible capacity backstop price should be related.

SFCP and Backstop Must be the Same Price

The SFCP and backstop price must be the same. PG&E believes that potential for gaming or manipulative behavior exists if the prices are different and become increasingly likely if the backstop price is greater than the price of SFCP.

PG&E further points to the CAISO's use of the the Standard Capacity Product (SCP) as a model for the SFCP and suggests that if it is to serve as a model, that model should be employed consistently. The SCP and current backstop are the same price and settle at monthly granularity.

8. Are there any additional comments your organization wishes to make at this time?

Clarify the Rules Related to Recalculation of Flexible Capacity Requirement

SFCP penalties and resettlement in the event that an LSE submits inaccurate data requires additional clarity. Page 14 of the Proposal states that the CAISO "may rerun the flexible capacity requirement assessment during the year and recalculate flexible capacity requirement…" The Proposal lacks detail as to what thresholds will be set to trigger such penalties or how such a process might work if the discrepancy is found after the current 36-month settlement publication process. Use of the word "may" further suggests a level of optionality in the process.

Define the Relationship Between the Flexible Ramping Constraint and FRAC-MOO

PG&E would like further details as to how capacity declared under the FRAC-MOO process will interact with the current Flexible Ramping Constraint (FRC) and future products. Given that the FRC incorporates a no-pay provision for resources that fail

[10] The Proposal states on page 27 that, "the ISO will notify SCs for LSEs at least 25 days prior to the start of the month if there are any deficiencies or if replacement flexible capacity is needed to address a planned or approved outage," and also states that "ISO will not implement backstop procurement for planned and approved outage replacement (i.e. the ISO's recently approved replacement rule) flexible capacity starting in the 2016 compliance year. Footnote 19 states that "the ISO is continuing to assess the need to implement a rule for replacing flexible capacity on planned outage.

to provide flexibility when dispatched, we would like determine if this process will impact any flexibility nominated under FRAC-MOO. If the nominated energy is treated differently, then it will be critical that the different market products be easily distinguished in the CAISO dispatch system and through any resulting calculations.

Clarify the Rules for Flexible CHP Resources

PG&E generally supports the CAISO's proposed treatment of flexible planning capacity from CHP resources. The proposed structure appears to create the correct incentives for CHP resources to lower their RMT max if the revenues for providing flexible capacity exceed the resource's operational opportunity cost. This price signal will promote more efficient usage of CHPs.

The CAISO must also clarify rules for counting CHP EFC. According to Tariff section 30.5.2.2, CHP resources offering supply bids must submit their regulatory must-take maximum (RMTmax) value to represent the highest possible quantity to be utilized by their industrial steam host. Any value between RMTmax and the nameplate value of the resource should be expected to be potential flexible capacity, eligible for EFC designation.

Not unlike the EFC treatment for hydro, CHP resources should be able to claim the largest value between the RMTmax and NQC as the EFC of the resource. On a monthly basis, SCs must determine what portion of the resource's EFC it can claim as flexible capacity based on the amount it anticipates can meet the flex RA must offer obligation. Substitution and replacement rules should apply.